

Malaria and filariasis may be controlled in the same way. Attention to the rat cleared San Francisco of the plague. Other diseases such as amebic dysentery and hookworm disease are controlled by preventing contamination of the soil and curing the cases. In hookworm disease a cure can be accomplished in a few days, i. e., the parasite can be destroyed; so by treating all cases and guarding against reinfection the disease would theoretically soon be stamped out of a community. However, the long life of the embryo, over a year in the laboratory, makes its eradication from the soil a very difficult problem, as has been demonstrated, especially in the mines of Westphalia and Cornwall.

In this day of preventive medicine, it would seem that measures should be taken to control, as far as possible, the influx of persons infected with these diseases. Up to the present time nothing has been done. A Chinese, a Japanese, a Hindu or a Porto Rican has been permitted to introduce the diseases peculiar to his country without a question.

**Discussion.**—P. A. Surgeon M. W. Glover, San Francisco: There seems to be some little confusion as to the exact duties of the different marine hospital officers here, and I will make that clear first. In the first place, I am not the quarantine officer. That station is also on Angel Island, it is true, but I am attached to the Immigration Service, for the purpose of examining aliens coming into the country, to determine whether they have any contagious disease, are insane, idiots or imbeciles or unable to earn a living from any physical cause. It is a very difficult matter to carry out this inspection so thoroughly as to exclude all of the tropical diseases that Dr. Gunn has been speaking of. There are some of them that are classed as dangerous contagious diseases or loathsome contagious diseases that are sufficient to deport the alien outright, except in certain cases where the alien has the right to land irrespective of his physical condition, such as a native or the sons of a native. A Chinaman who is a native goes to China and marries; maybe ten or twelve years later his son will come over and must necessarily be landed on proper identification. Those cases we cannot do anything with, they are landed immediately; that question has been thrashed out in the courts and there is nothing to do but to land them. The poor benighted Hindu has been pretty well kept out heretofore; regardless of the hookworm, every opportunity has been taken to keep him out. Before I began to examine the stools of these people they were certified for debility, poor physique or anemia and they were sent back. Now I have some good scientific reason for certifying them and my conscience is a little clearer. Many cases of hookworm disease must have entered the country, because since I have been looking for the hookworm ova I find it in cases that present no clinical evidence of having the disease. I have found some cases of amebic dysentery and several cases of malaria from Mexico and Panama, going to the Orient, but no effort is usually made to stop this class of case going out of the United States. I was much interested in the paper just read by Dr. Gunn, and also in the case of leprosy exhibited by Dr. Mead. Hereafter I will keep my eyes open for leprosy, though such cases are supposed to be barred by the quarantine officers.

Herbert Gunn, San Francisco: Hookworm is a disease that can be very readily controlled because it can be cured in a few treatments. It seems to me that it is an awful thing to allow a state to become infected with a disease which is so hard to eradicate from the soil when it once gains a foothold. This state in the last five years has been overrun with cases which were allowed to scatter throughout the farming regions and thus have probably infected the country.

### A Case of Continued Fever.

By W. C. ALVAREZ, M. D., San Francisco.

Read at the meeting of Oct. 4th, 1910.

Nothing will teach a man so much, or keep him so humble, as the frequent performance of autopsies. He will become all the humbler if the mistakes and oversights occur in his exhibition cases like the one I am about to describe. Such accidents must have happened even to the Father of Medicine, judging from the first of his famous aphorisms, "Experience is fallacious and judgment difficult."

T. H., aged 53, a laborer, came to Cooper College Clinic September 6, 1909, complaining of a dull, dragging pain in the right lumbar region, so severe as to keep him from any rest or sleep.

His past history was negative except for a little malaria. He never had anything like rheumatism, and never had any joint pains in this or any other illness. He did not remember ever having any symptoms referable to the heart, and that organ seemingly had always been competent. There was no history of any lung trouble.

He had been feeling badly and suffering some pain since the first of the year, and had to quit work two months previously. A significant point was that the pain was relieved by sitting erect. No note was made as to any tenderness of the spine at the time, though it must have been looked for. There was marked rigidity of the lumbar vertebrae. He perspired freely on slight exertion. The heart sounds are described as forcible and clear. The pain later moved around into the back. Under pot. iod., sod. sal., colchicum and aspirin he seemed to improve, and was discharged November 29 as better.

A month later he was admitted to the polyclinic service at the C. and C. Hospital, much emaciated, and complaining of the same severe pain, now in the right hypochondrium, sometimes severest over the gall-bladder and sometimes over the appendix. This led to his transference to the surgical service for operation. They could feel no mass in the abdomen, and, as there was very little resistance, they very discreetly sent him back to the medical side for a diagnosis.

There the following notes were taken. The pain has sometimes shifted over to the left side for a while. It has never radiated down the ureter. There has been no precordial pain or symptoms referable to the heart. He has lost sixty pounds in weight in the last year. There is no mention of pulse or temperature in the Cooper Clinic record, and the patient states that he began to notice fever shortly before entering the hospital. During the five months of his stay there, he ran a septic temperature from 103° to 99° in the mornings, without intermissions.

The face is red with marked cyanosis of the nose and ears. The hands are also very cyanotic. There is slight dyspnea and respiration is mainly thoracic. No definite pathologic changes in the lungs. The heart is slightly enlarged to the left, a systolic thrill can be felt and there is a double mitral murmur. In the abdomen, a distended cecum can be seen, which disappears under palpation. There is slight rigidity of the muscles on the right side, and a little tenderness over the appendix. There is no tenderness over the gall bladder where the pain is now localized. The spleen and liver are not enlarged, and there is no mass to be felt anywhere. There is absolutely no tenderness of the spine on vigorous percussion and no disturbance of sensation can be demonstrated. The reflexes are slightly exaggerated in the lower extremity.

Counts made in January showed a leukocytosis of 11,000 to 14,000.

Dr. Schmoll made a diagnosis of chronic ulcerative endocarditis with an embolus somewhere in the corresponding spinal segment to account for the pain. This pain, by the way, disappeared suddenly nearly

two months before he died, and did not return. The occasional pain in the left side suggested infarction of the spleen. A blood culture was made February 3, and showed staphylococcus aureus, which was thought to be a contamination. A second blood culture, after three days in the incubator, showed a delicate growth of a streptodiplococcus which appeared to be identical with the diplococcus rheumaticus of Ponyton and Paine. After several transplantations, the growth from three agar slants was injected into two rabbits, but did not produce any symptoms whatever in either animal.

The patient was now given large two-hourly doses of sod. sal., with sod. bicarb., and he had a day entirely free from fever, the first in months. His general condition seemed to improve very markedly, and he got up out of bed and walked around a little. There was no paralysis and no disturbance of gait. The murmur and thrill also disappeared.

He was now the exhibition case of the ward, many men went over him, and the University of California held a clinic on him. All agreed that a nice diagnosis had been made and well proven. But the improvement was only temporary and he died on April 13, after a short terminal pneumonia. Fortunately we were able to secure an autopsy through the courtesy of the anatomical department of Cooper Medical College. Unfortunately we had taken good care to apprise our colleagues at Cooper of their diagnostic shortcomings in this case, and next day they were out looking for us. The pathologist, with his usual ruthlessness, had spoiled the whole thing. This is what he found.

The heart showed only an old sclerotic process at the mitral orifice and no recent endocarditis. Nothing was found in the vascular system to account for the bacteremia.

Both lungs were firmly adherent along the bodies of the ninth, tenth and eleventh dorsal vertebrae. This was found to be due to a tubercular caries which began in the ninth dorsal vertebra and extended along the intervertebral disc through both sides and backwards into the spinal canal where a large mass of granulation tissue was beginning to press on the cord. Abscesses were formed on each side, the larger on the right, which finally spread into the lung and caused a caseous pneumonia. The intercostal artery and nerve on the right side were exposed in the wall of the abscess cavity. There were a few tubercular ulcers in the intestines, a few abscesses in the prostate and several nodules in the kidneys, liver and spleen.

The original focus was probably an old fibrotic process in the left lung.

The first thing to do with an obscure case like this is to put the man to bed in a good hospital where he can be observed for a few days at rest. The man was seriously ill when he came to Cooper, and it was a mistake to try to treat him through the clinic. The temperance must be taken every few hours so as to detect any afternoon rise. The pulse is also very important, as it sometimes has a typical curve when the temperature does not vary much. The persistence of the rapid pulse with rest in bed is a valuable sign of toxemia—often tubercular. It must be remembered that the rise in temperature does not have to start from 98.6°, the accepted normal. Many of us have a temperature of only 96°-97° when at rest in bed, so that the earliest sign of a beginning tuberculosis may be a regular rise to 98.6° or 99° at most.

The case under consideration is an excellent example of how sometimes things seem to conspire to lead one astray. In the absence of the heart murmur and the positive blood-culture, we might have continued studying him in other ways until the tubercular process was discovered. It might be mentioned here that it is proverbially difficult to interpret heart-murmurs in the presence of fever and anemia. Towards the close of this man's illness,

tubercle bacilli might have been found in the feces as pointed out by Rosenberger. An examination of the prostate and testicles should never be omitted as they are often the seat of tubercular foci. In this case, the prostate was known to be large. Strange to say he never had any cough or sputum in spite of all the pleural irritation. It is also remarkable that there was no tenderness of the spine and no interference with the function of the cord.

Let us now briefly consider the subject of chronic malignant endocarditis.

Osler has frequently called attention to the fact that there is a form of endocarditis which can run on for months, with a little fever as its only symptom. The more acute cases generally do not last longer than three months and the course is marked by chills and sweats which greatly resemble malaria. The diagnosis is fairly easy, however, as the heart symptoms are predominant, and there is a history of recent broken compensation perhaps after rheumatism or pneumonia.

The very chronic cases often show for several months little more than the persistent fever and they sometimes keep at work with very little toxemia, fair appetite and only slight loss in weight. The disease is really a septicemia, with occasionally symptoms of a mild pyemia, and it is not surprising that it is often taken for ambulant typhoid.

The presence of the old sclerotic valves, and especially congenital lesions is very important as a predisposing factor.

The fever is remittent, seldom rises over 102°—103°, and is very regular except for occasional periods of apyrexia which may occur, especially towards the end of the disease and give rise to the deceptive hope of recovery. There are no subjective heart symptoms and the murmurs show remarkably little change even with marked alterations in the condition of the valves. There is generally a little enlargement and dilatation of the heart. Signs of embolism are of greatest importance when found. There may be sudden swelling of the spleen with pain and perisplenitis; sudden hematuria; retinal hemorrhages; hemiplegia; crops of purpura, and very diagnostic small painful erythematous nodes which appear suddenly, especially on the hands.

Blood-cultures are very valuable in these cases as in a large proportion, the bacterium can be isolated. Five to ten cc. of blood can easily be taken from the veins of the arm without causing much discomfort. The skin over the vein may be sterilized and anesthetized with a tiny drop of pure phenol and even nervous women will not complain at all.

The commonest organism found is a streptococcus of low virulence as shown by animal experiments and the fact that the emboli never suppurate as they do in pyemia. There is rarely any leukocytosis though the number of circulating bacteria may be enormous, and the toxemia is generally slight.

Horder has studied the streptococci isolated from thirty-one cases and concludes that most of them are identical with the non-virulent strains found normally in the saliva and feces. This low virulence and autogenous origin may also account for the great chronicity of these cases and the failure of the body to cope with the infection. The streptococcus which was isolated in our case was undoubtedly one of these avirulent strains which had entered the blood as a terminal infection at least three months before the end.

Endocarditis has been produced in rabbits with these streptococci.

Other conditions to be thought of in a case like this are typhoid with relapses, syphilis, Hodgkins disease, malignancy and sepsis, in which the focus may be in the pleural cavities, the liver, the biliary system, the renal pelvis, the appendix, the Fallopian tube, the urinary bladder, the middle ear, the nasal sinuses. The leukocytes will be normal in number if the septic focus is well walled off, but a count

should always be made immediately after a chill, as a rise at that time is very significant.

The study of these cases of protracted fever is one of the most interesting in the field of medicine, and with all our refinements of diagnosis, the autopsy too often has a surprise in store for us if we have been able to form any kind of a diagnosis at all.

In closing, I wish to thank Dr. Schmoll for permission to report this case, and Drs. Dickson and Blaisdell for their great courtesy in securing the autopsy.

**Discussion.**—Herbert Gunn, San Francisco: Speaking of prolonged temperatures, Dr. Alvarez mentioned Hodgkins' disease. I saw a case in the City and County Hospital five or six years ago, and followed it for about two years; there was remittent temperature running about two weeks, followed by an intermission of two or three weeks with the temperature normal or subnormal. This lasted for several years. The diagnosis was made of Hodgkins' disease of the variety described by Ebstein. Finally the man came to autopsy and the diagnosis was verified.

### QUANTITATIVE FOOD PRESCRIBING.

By H. D'ARCY POWER, M. D., San Francisco.

Read at the meeting of Oct. 11th, 1910.

It would be interesting to ascertain the percentage of physicians who in the United States, or for that matter in any country, habitually prescribe a quantitative dietary for their patients' use. So far as I have been able to judge one per cent. would be in excess of the truth, yet it is universally recognized that every deviation from the physiological norm is fraught with loss in matter or energy, that too often is irreparable. Why then do we not prescribe foods with as much accuracy as we apply to drugs? Why do we condemn the shotgun prescription and condone the shotgun diet? The true answer is that quantitative directions are not given because many do not know what to order, and others are unable to give directions that are intelligible to their patients. The work of the past twenty years has brought some order out of chaos. We do know the food requirements of the body in health and disease, we do know the ability of the various food stuffs to supply these demands. But this knowledge has not been put in a form capable of utilization by the general practitioner in his daily work. This communication is a small attempt in the latter direction. I hope to show that without lengthy and perplexing tables we can prescribe qualitatively and quantitatively with sufficient accuracy to meet all clinical requirements and in a manner understandable by our patients.

In order that I may justify my method, it is necessary to draw your attention to some of the well attested principles that underlie all dietetics. Let us first note that there is not only an absolute obligation to eat, but also to eat a certain quantity. We must oxidize enough matter each day to preserve our normal body heat,—if we fail we die. We must take in that matter as food, or take it from our body tissues. The amount of heat we lose is determined by the extent of our skin area, and for men living under normal conditions this is the one and sufficing factor in fixing our daily ration. A dead body left in bed cools at a definite rate, a living body radiates heat under the same conditions at the same rate, namely, about 1000 cal. per sq. meter or 30 cal. per kilo. If no food is taken the amount of heat is obtained by the oxidation of the tissues (13% protein, 87% fat). From this law there is no escape, but how often is it overlooked in sickness. A sick child refusing its food, loses weight twice as fast as an adult under like circumstances. How many of us make an estimate of its caloric requirements and see that they are supplied? A short fat man and a tall thin man of like weight come down

with typhoid fever. Do we realize that the dietary of the two should be quantitatively different and that if we fail to note this a heavy penalty will be exacted? Speaking of typhoid, I feel that if natural laws have any validity, then most assuredly we have been responsible in the past, and are still frequently responsible for much of its mortality. For years we fed our typhoid patients on an empirical diet, of milk 40 oz., beef tea 40 oz., less than one thousand calories, when the body was losing at least 2000. Thus Dr. Thomas McCrae of Johns Hopkins in his recent article on the Treatment of Typhoid, prescribes as a diet to be used throughout the attack 24 to 36 oz. milk and the whites of two eggs in water; if any change is made it should be in the nature of a reduction. The learned writer makes no reference as to whether the patient is fat or lean, short or tall, all alike are condemned to a daily loss of substance equal to 2000 calories, or more. That an obese individual might with benefit borrow 50 lbs. of his weight to supplement his diet is conceivable, but that a normal or thin person can so deplete his tissues without harm is absurd. No wonder we meet with degenerative lesions in the latter periods of the disease. This law of minimum requirement is all important in health as well as disease. Thus we meet with healthy people under and over weight. A careful enquiry into their food habits (I make them bring me a detailed account of everything they have eaten and drank for seven days) will show that many of the under-nourished are living so close to the physiological minimum that occasional dips below are not made good. As to the obese, the common fallacy that they cannot be relieved by diet is foolishness. Chittenden has shown that an obese man can be fed on a diet equal to two-thirds of his daily loss without any harm. When his proper weight is attained it is merely a matter of seeing that his daily diet shall not exceed his minimum physiological requirement. In connection with this matter of obesity, I would draw your attention to another law of practical application. When the daily intake of food exceeds the body needs, its constituent parts are differently dealt with. All the proteid is consumed, most of the carbohydrate suffers oxidation, but if the food contain fat, this as the least easily oxidized is most prone to be stored. If therefore your obese individual will not restrain his appetite, he will make the least gain on a proteid diet.

It will now be in order to consider what is a physiological diet, by which term I mean the minimum daily intake of food that shall provide the necessary energy without loss of weight. Anything more than this must of necessity be a detriment—for all burning of unused residues implies labor and cell exhaustion, and all storing of surpluses, so much useless additional weight with corresponding tax on the organism. Let it first be noted that the figures obtained by observing the loss of a starving body at rest and protected from cold, are suggestive but not conclusive of our needs. The loss of body weight equal to the 1500 calories p.d. cannot be replaced by a food allowance of equal caloric value. Losses occur in the intermolecular combinations, which demand a larger intake. The question is, how much? There are two methods available to the investigator. We can observe the general experience of men under varying conditions; and if widely separated races and classes give an approximately uniform response, accept this as nature's answer. Secondly, we can ascertain by careful experimentation under conditions that admit of exact measurement, the minimum food supply compatible with active work and perfect health. Both methods have their advocates, and if the results agreed there would be no more to be said on the subject. For a long time such an agreement was supposed to exist, and the laboratory findings were closely in accord with the average human experience. Thus the dietaries of farmers in the New England States, Mexico, Italy and Finland run about 3500 cal. p.d. Even the quite